

# **SR 167 High Occupancy Toll (HOT) Lanes**

## **Pilot Project**

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**Transportation Commission**

November 14, 2007



# Goals for Today

- Review National HOT lanes operations
- Review SR 167 HOT lanes operations
- Introduce toll setting policy issues

# WAC Process

November 14<sup>th</sup>, 2007 – Workshop

December 19<sup>th</sup>, 2007 – File CR 102

Early January, 2008 – Hold Public Hearing

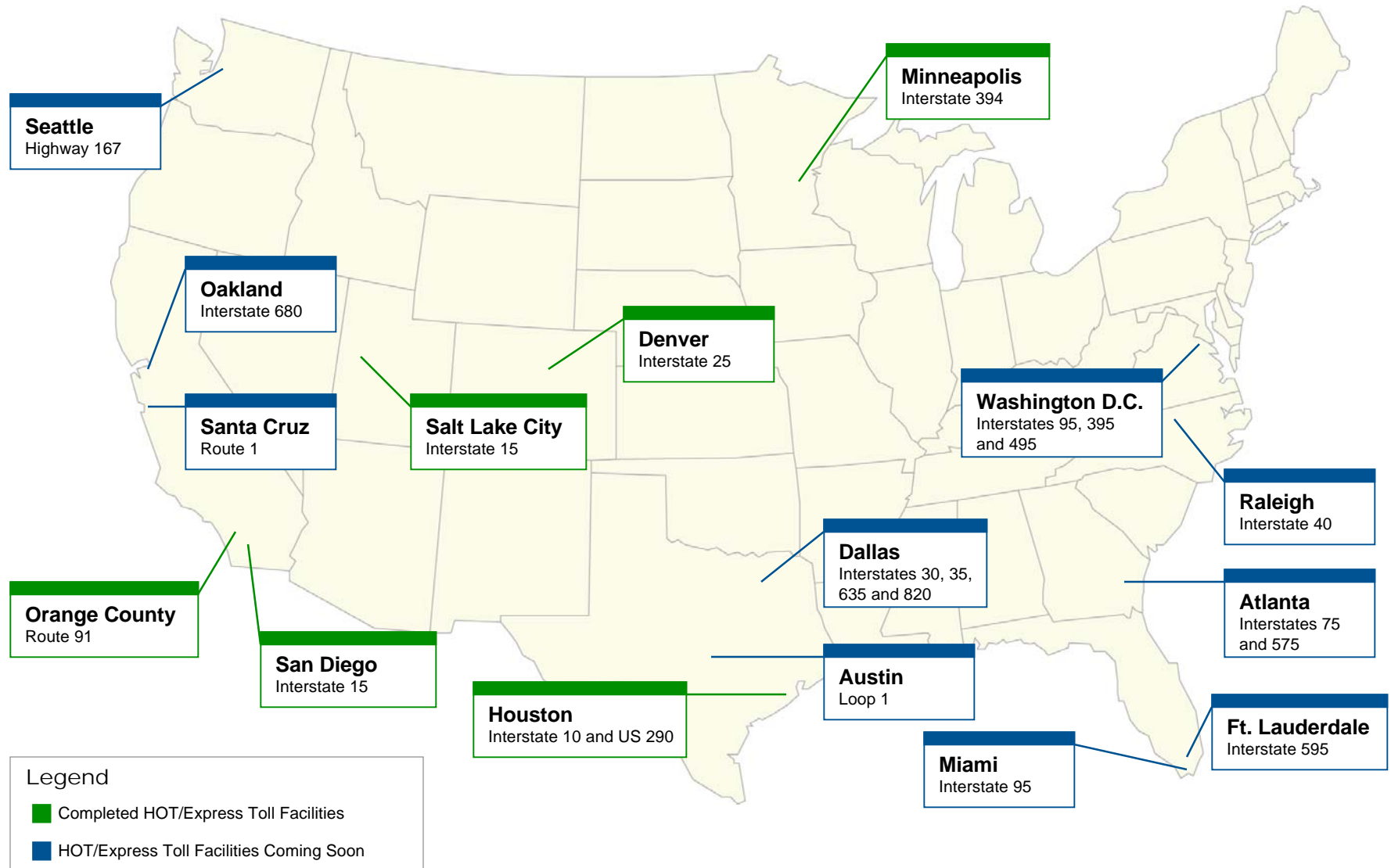
January 22<sup>nd</sup>, 2008 – File CR 103

February 22<sup>nd</sup>, 2008 – Adopt new WAC

# Key Questions

- What are the benefits of pricing?
- Who pays the toll?
- What would be the minimum and maximum toll rates?
- When should the toll rates be in effect?
- How should the toll rates be spent?
- How are the tolls collected and enforced?

# Where are other HOT Lanes in the U.S.?



October 2007

# San Diego: I-15 Express Lanes



- Constructed in 1988
- Technology same throughout California
- First project to use dynamic pricing

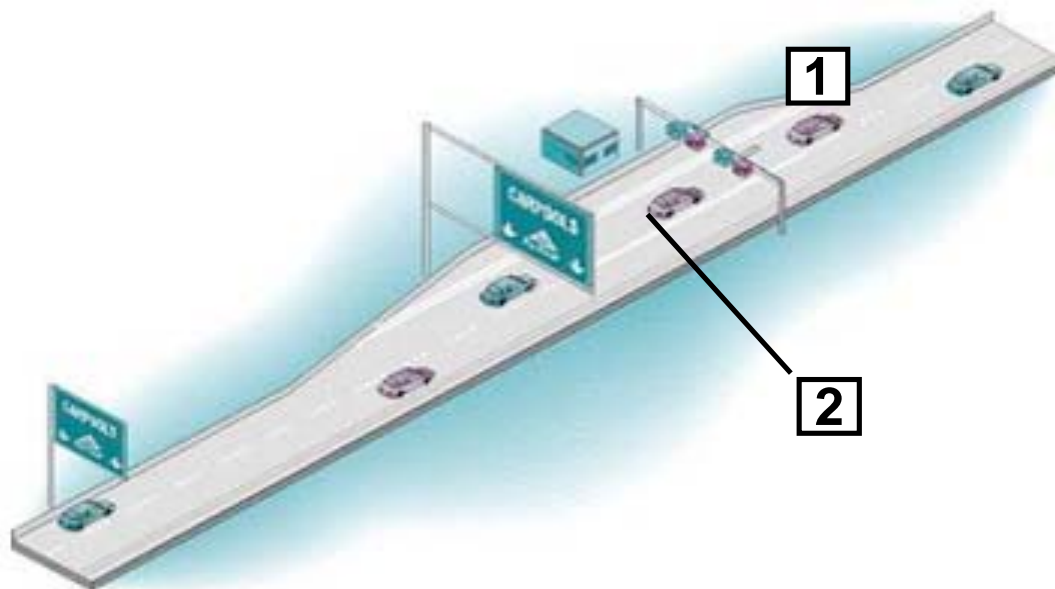


# San Diego: I-15 Summary of Features

- Fees set to keep traffic free flowing
- 8 miles
- HOV 2+ are free
- Access at two ends only
- 2 lanes reversible
- Peak direction
- Closed between 7:00 p.m. and 6:00 a.m.
- Price per trip: \$0.50 to \$8.00
- Revenue pays for O&M, 4 hours of enforcement and \$1M per year to transit service

# Existing Toll Collection System

- Built as 'Demo', adapted over time
- Single AVI Toll Location 1
- Single set of in-road sensors (loops) 2



- No enforcement system



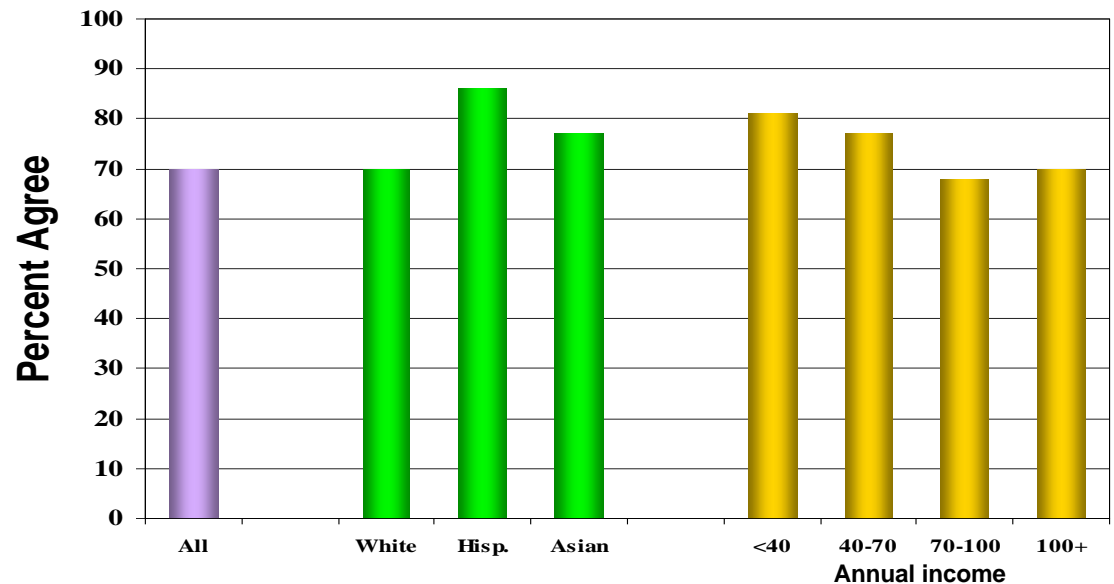
# Public Support for FasTrak Program

Conducted public outreach

- Stakeholder interviews
- Phone / Intercept Surveys
- Focus Groups



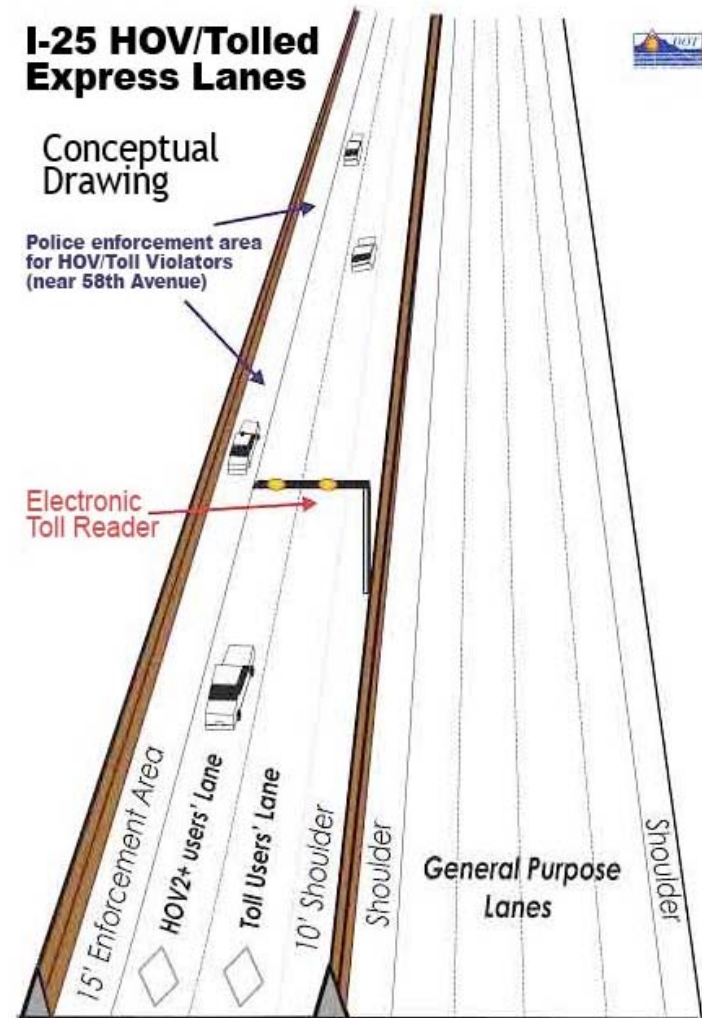
“ People who drive  
alone should be able to  
use the I-15  
Express Lanes for a  
fee?”



# Denver: I-25 Express Lanes



- Opened to traffic in June 2006
- Technology all the same in Denver
- Min Toll during peak = Bus Fare, \$3.25
- System developed to maximize use of the HOV lane



# Denver: I-25 Summary of Features

- Tolls set to maintain reliable trip for transit (60 MPH)
- 6.5 miles
- HOV 2+ and motorcycles are Free
- Access at 2 ends only
- 2 lanes reversible
- Peak direction
- Operates 24 hours
- Price per trip is between \$0.50 and \$3.25, depending on time of day
- Revenue pays for O&M, snow removal and repayment of grants used to build the toll system

# Minneapolis: I-394 MnPASS



Minnesota Department of Transportation



- Opened 2005
- Only toll facility in Minnesota, currently
- Improve I-394 efficiency
- Maintain free flow speeds for transit and carpoolers



# Minneapolis: I-394 Summary of Features

- Tolls set to maintain free flow speeds (50 – 55 MPH)
- 9 miles
- HOV 2+ and motorcycles are Free
- Multiple access points
- Bi-directional single HOT lane and 2 lanes reversible
- Peak direction
- Operates between 6 AM -10 AM and 2 PM - 7 PM
- Rates between \$0.25 to \$8.00
- Revenue pays for O&M and enforcement



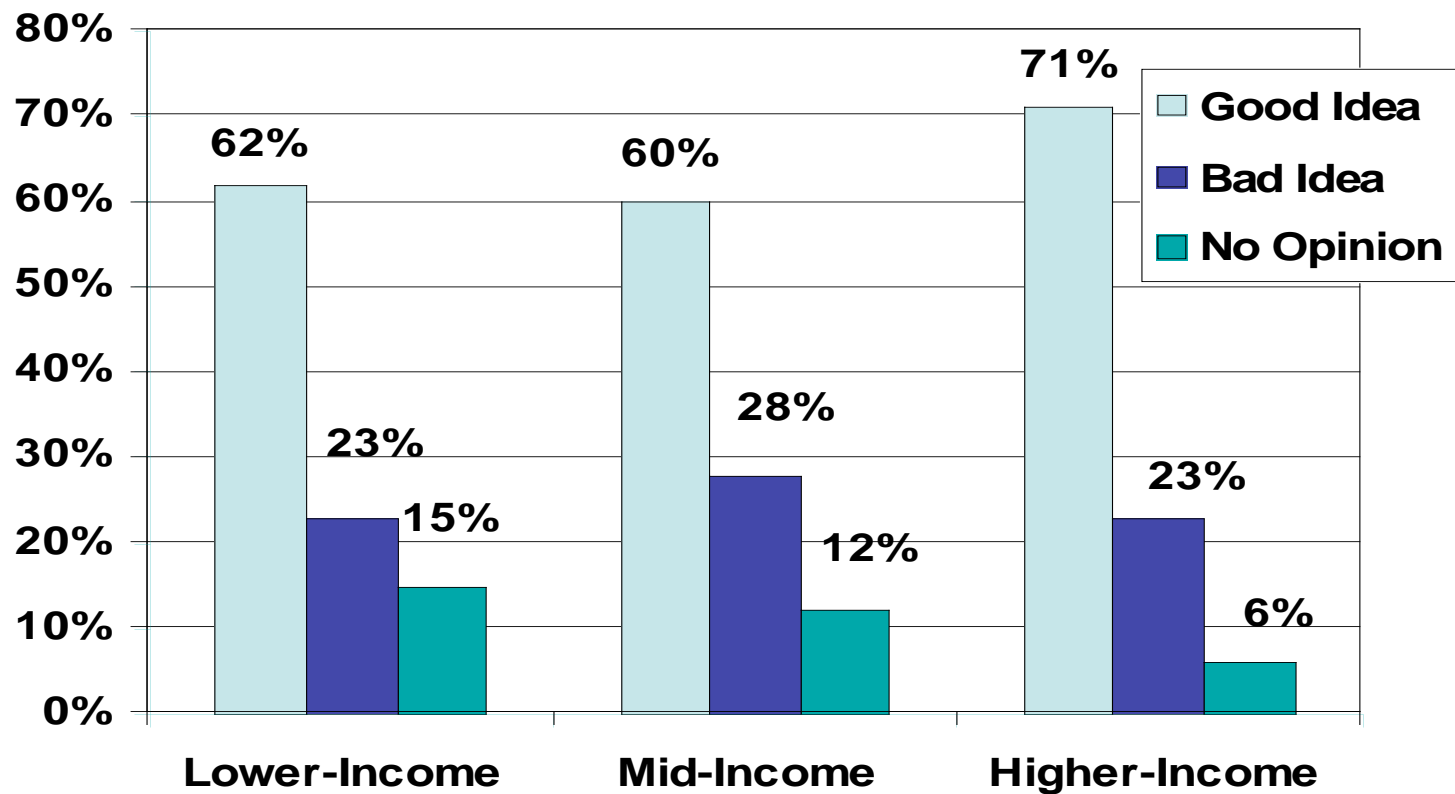
# MnPASS User Satisfaction

- 95% satisfaction with all electronic tolling
- 85% satisfaction with traffic speed in lane
- 76% satisfaction with dynamic pricing
- 66% satisfaction safety of merging



# MnPASS Acceptance by Income

What do you think of allowing single drivers to use the carpool lanes by paying a toll?



# Volume/Throughput/Speeds

- I-394 MnPASS lanes peak hour volumes increased 9 to 33%
- Total I-394 peak hour roadway volumes increased by up to 5%
- 95% of time speeds above 50 mph
- Travel speeds in the general purpose lanes increased by 2 to 15 percent



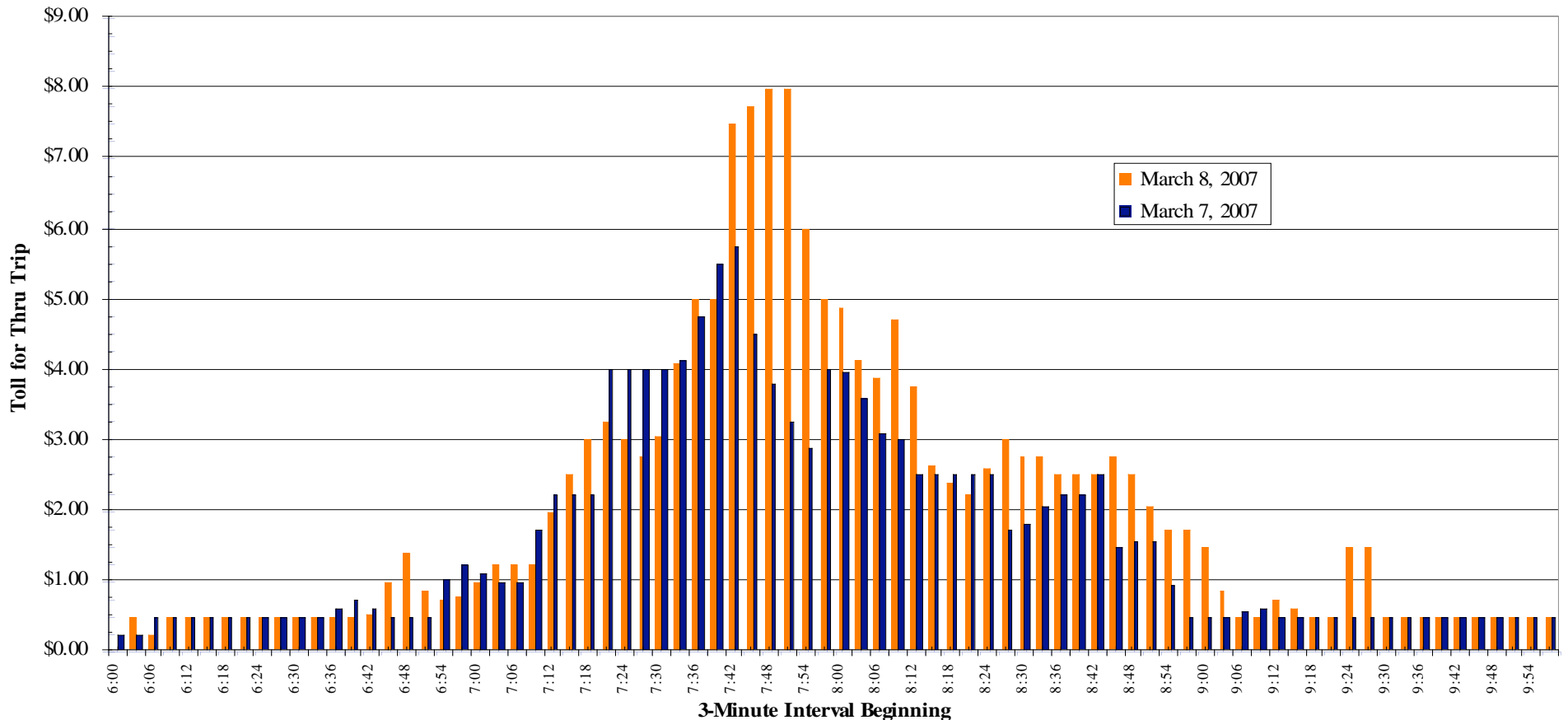
# Antenna Mounted on Police Car



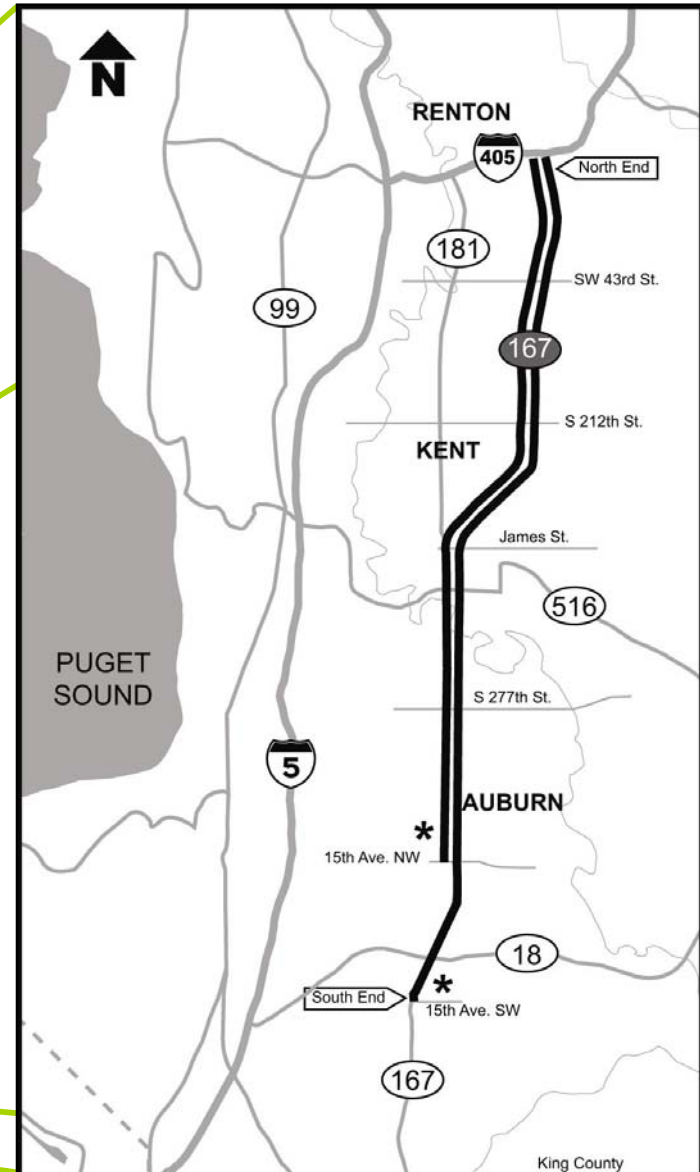
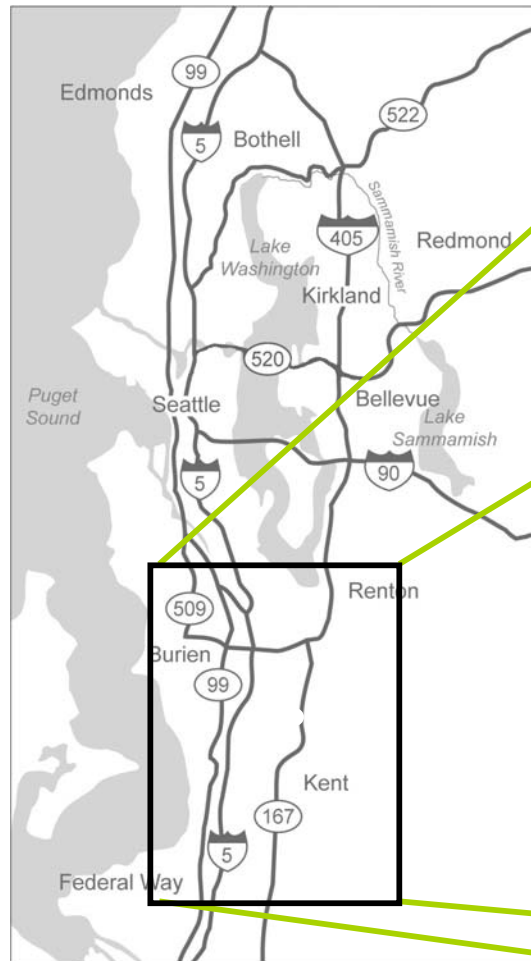
# On-Board PDA Screen Showing Mobile Read Information



# I-394 MnPass Toll Rates for 3/7/07 and 3/8/07 (6-10 AM)

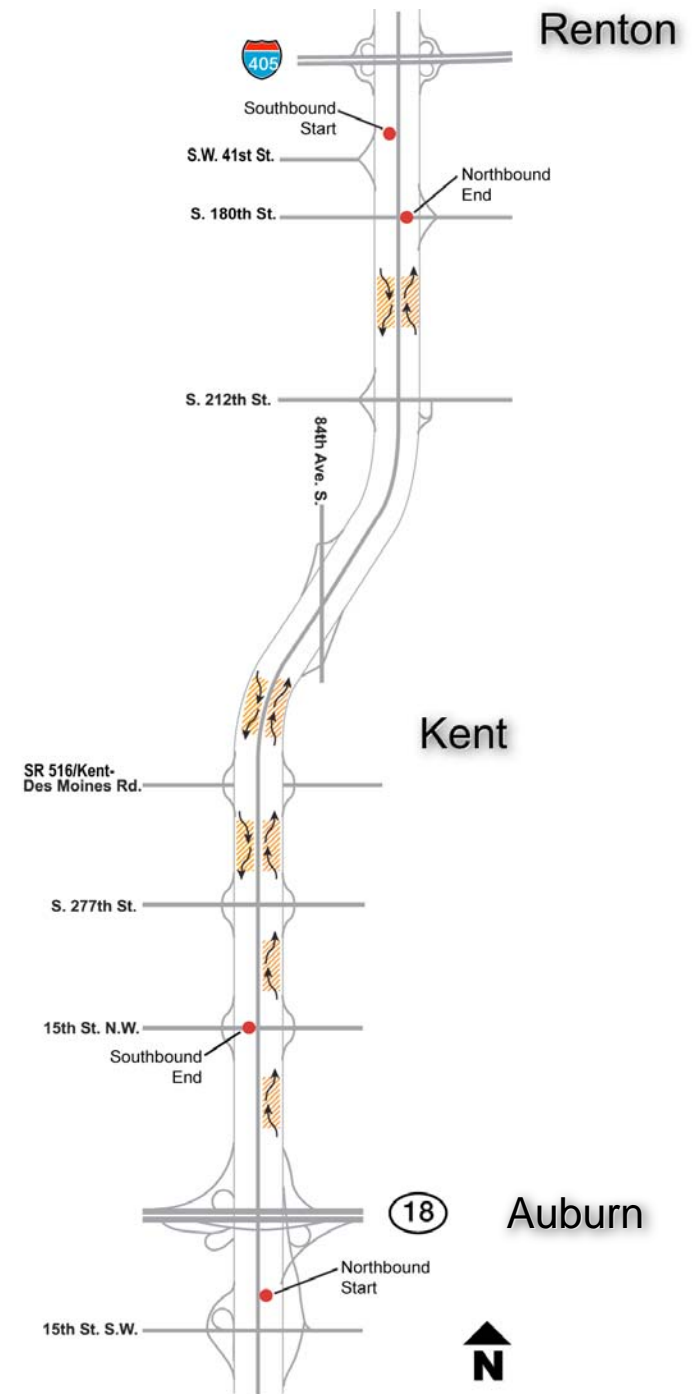


# SR 167 HOT Lanes



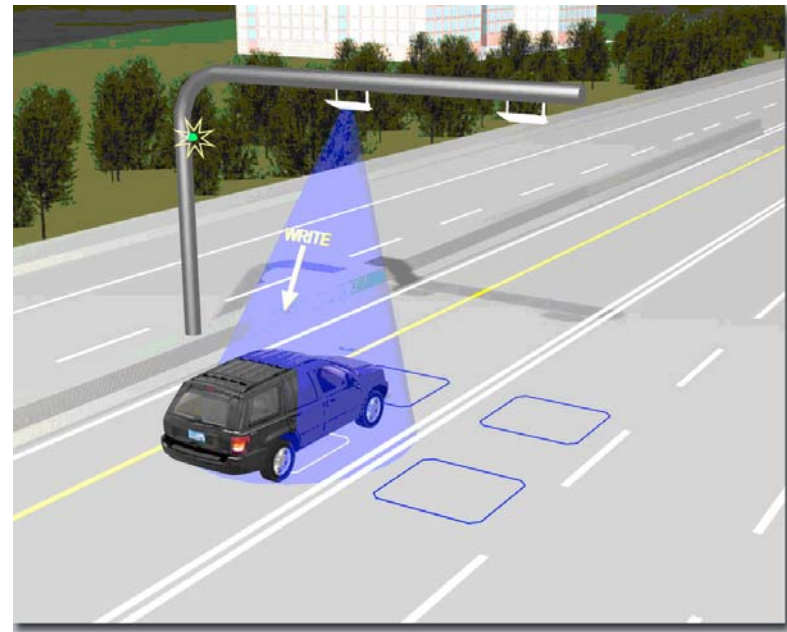
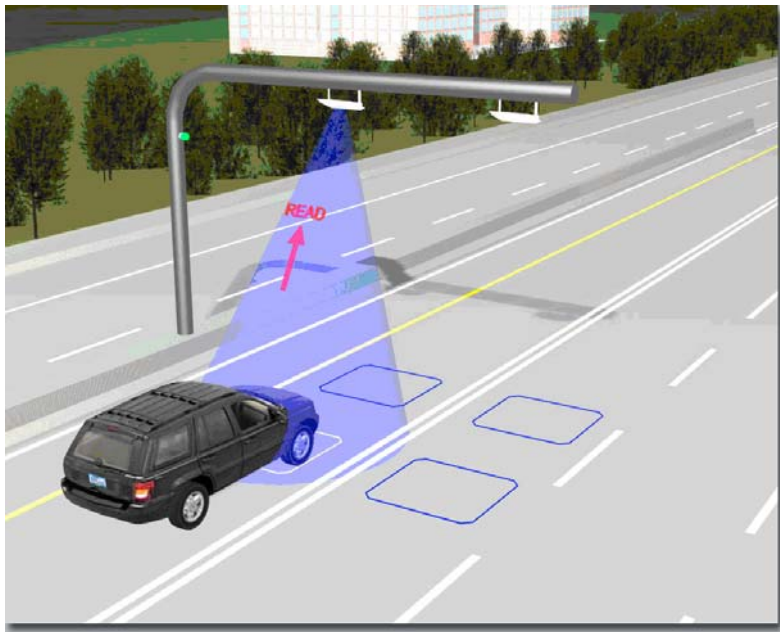
# Key Features

- Free flow operations goal: 45 MPH 90% during peak period
- More than 9 miles of HOT lanes
- 10 access points
- HOV 2+ Free and motorcycles
- Operating 24 hours a day (typically tolled between 5 am and 7 pm)
- Propose revenue pay for O&M, enforcement, and added incident response



# HOT Lane Transaction

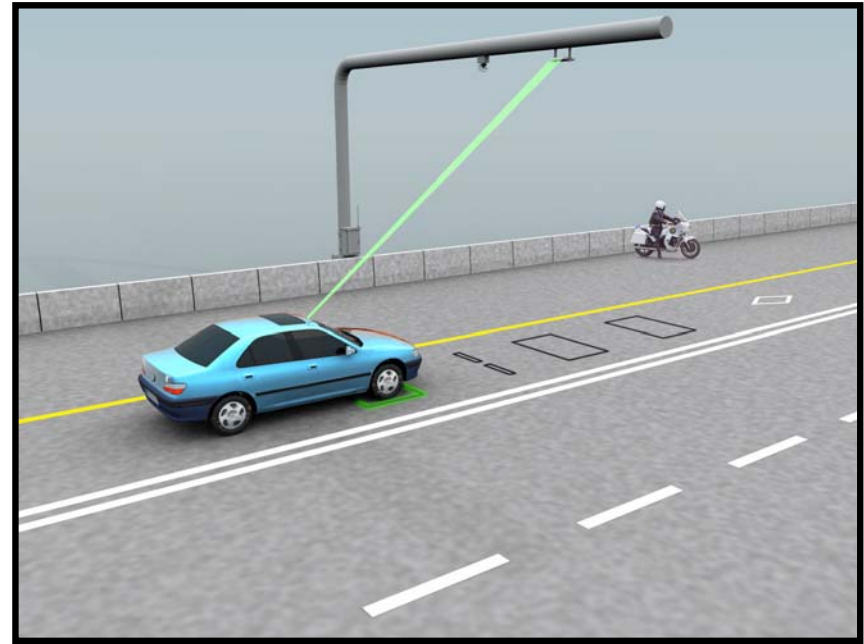
**Vehicle with an Unshielded Transponder**





# HOT lane enforcement

- Consistent enforcement is important to build public trust in the fairness of the HOT lanes
- WSDOT is working with the Washington State Patrol to enforce the new rules of the road.
- Traffic citations can be issued for the following violations:
  - Illegal use of HOT lane by single-occupancy vehicle
  - Attempt to avoid paying required toll
  - Crossing double white lines
  - **Three possible citations, each citation amount is \$124**
- Drivers can use the HERO system to report violators



*Simulation of WSP monitoring HOT lanes*



*Hand-held Enforcement Reader*

# Peer Review

- Participants from
  - Minneapolis
  - San Diego
  - Denver
- What they said
  - “You are 95% there”
  - “We wish we were this far along when we had opened”
  - “This is a pilot project. You will learn a lot once it is operational, so be prepared to adjust and make changes.”





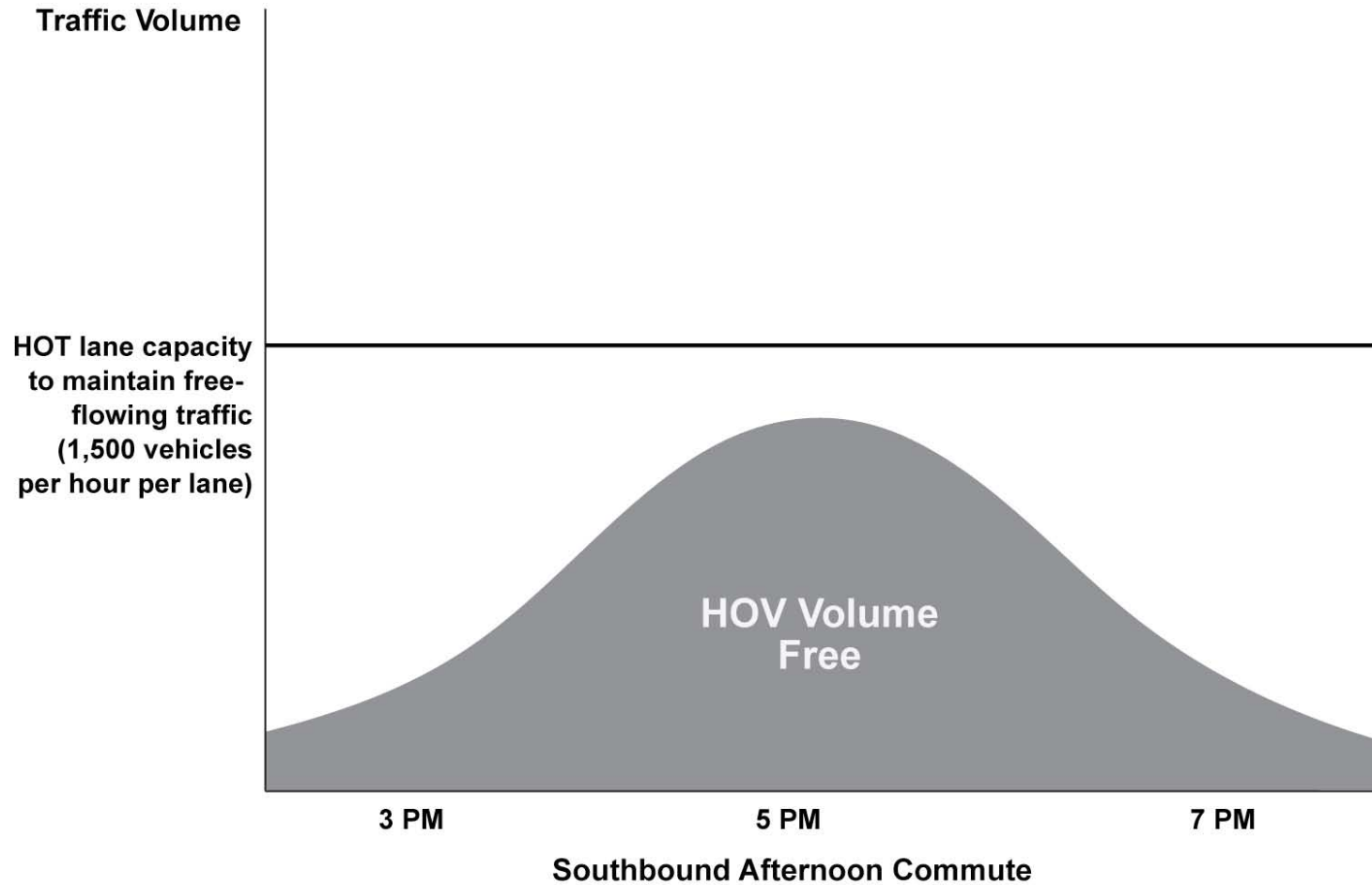
| Facility           | Project Length                        | Minimum Toll                                     | Maximum Toll or Highest Toll Charged                     |
|--------------------|---------------------------------------|--|--|
| I-15               | 8 miles                               | \$0.50 <sup>(1)</sup>                            | \$8.00 <sup>(2)</sup>                                    |
| I-25 Express Lanes | 6.5 miles                             | \$0.50   | \$3.25   |
| I-394              | 9 miles                               | \$0.25 per section (\$0.50 for full-length trip) | \$8.00   |
| SR 167 Hot Lanes   | 9 to 12 miles, depending on direction | \$0.50 based on analysis                         | \$7.00 to \$10.00 <sup>(3)</sup> range based on analysis |

<sup>(1)</sup> Consideration is being given to increasing the minimum to \$1.25 to enhance revenues.

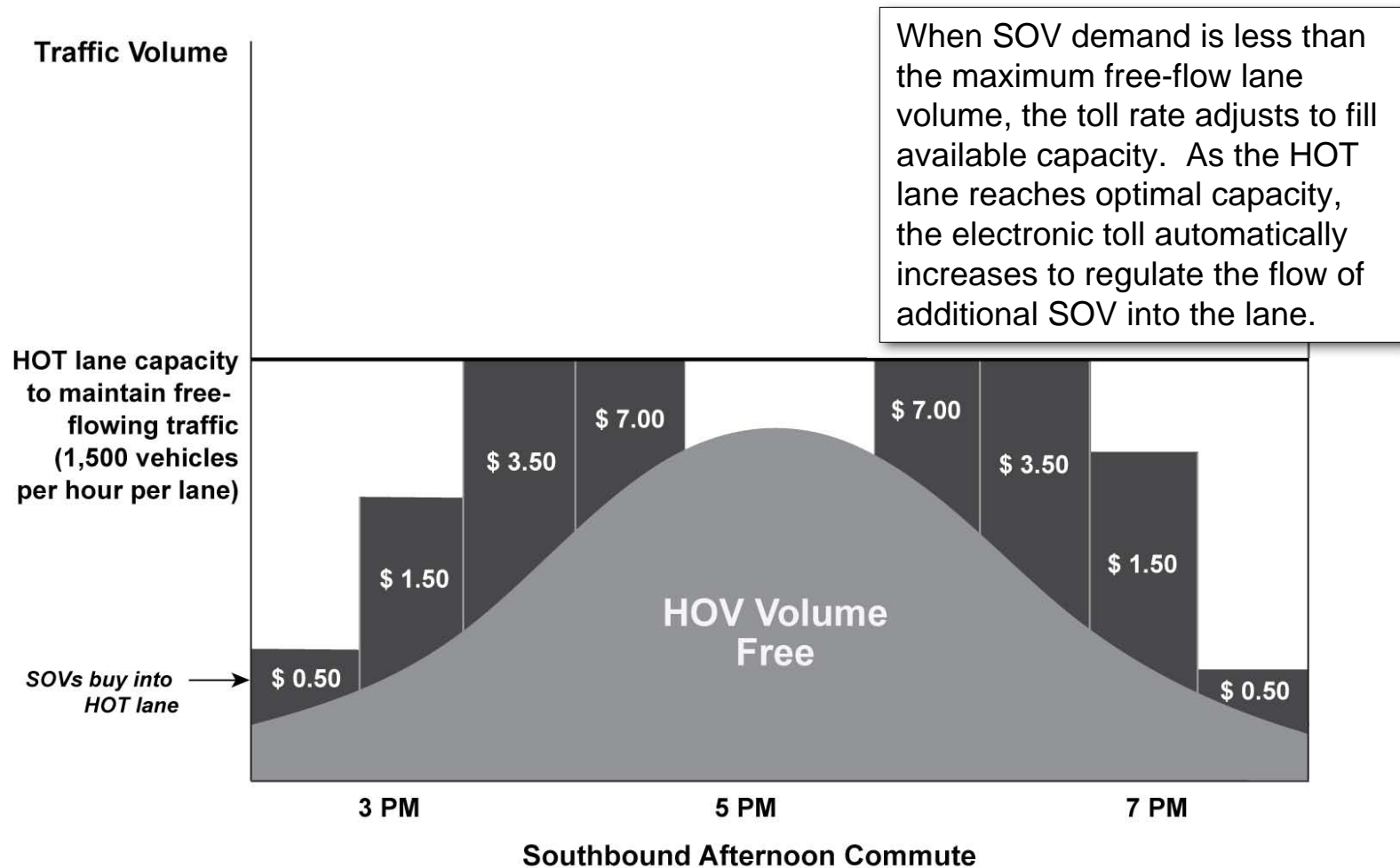
<sup>(2)</sup> The published maximum toll in charts on Sandag's website is \$4, although rates can go as high as \$8 when needed to meet the project's speed objective.

<sup>(3)</sup> WSA analysis found little sensitivity to toll rates in 2010 and 2012.

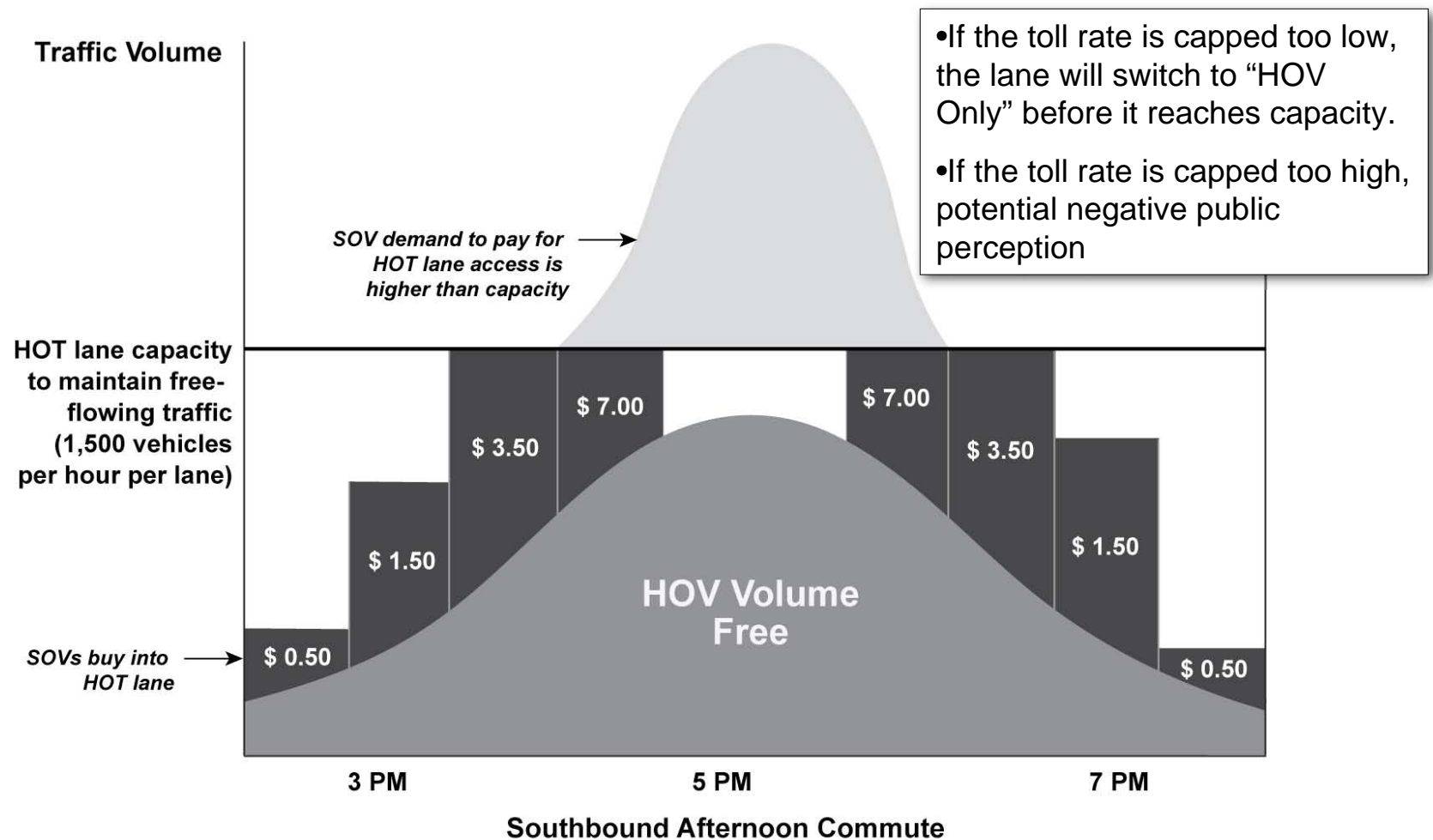
# Illustrative HOT lane demand chart



# Illustrative HOT lane demand chart



# Illustrative HOT lane demand chart



# Toll rate range

Lower range maximum rate: \$7.00

- Lane may operate as “HOV Only” during periods of high demand; reducing the choice to pay when drivers need it most

Higher range maximum rate: \$10.00

- Possible negative public perception
- Provides more flexibility to maximize efficiency of system

# Questions?

## **Contacts:**

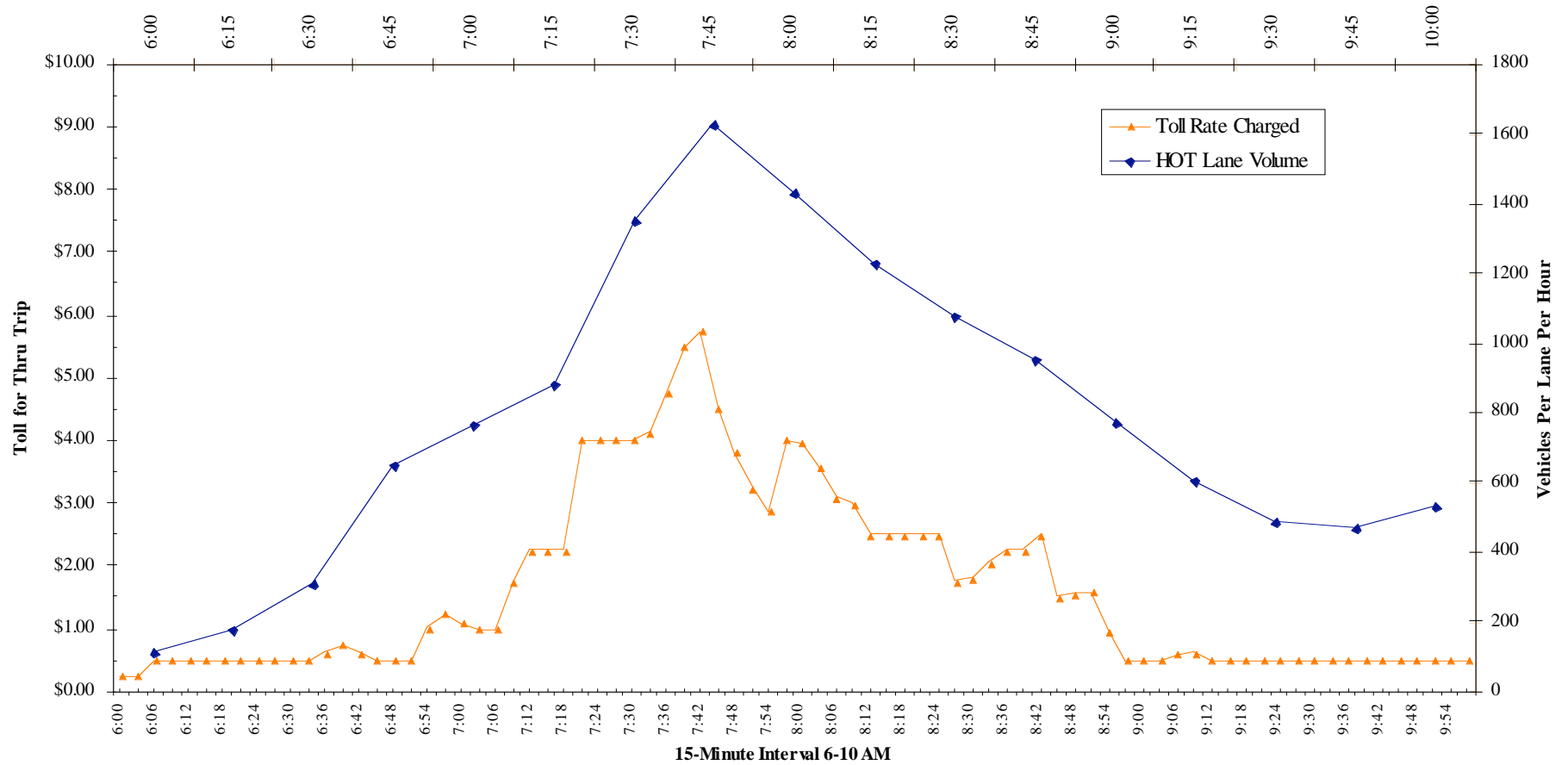
### **Craig Stone, PE**

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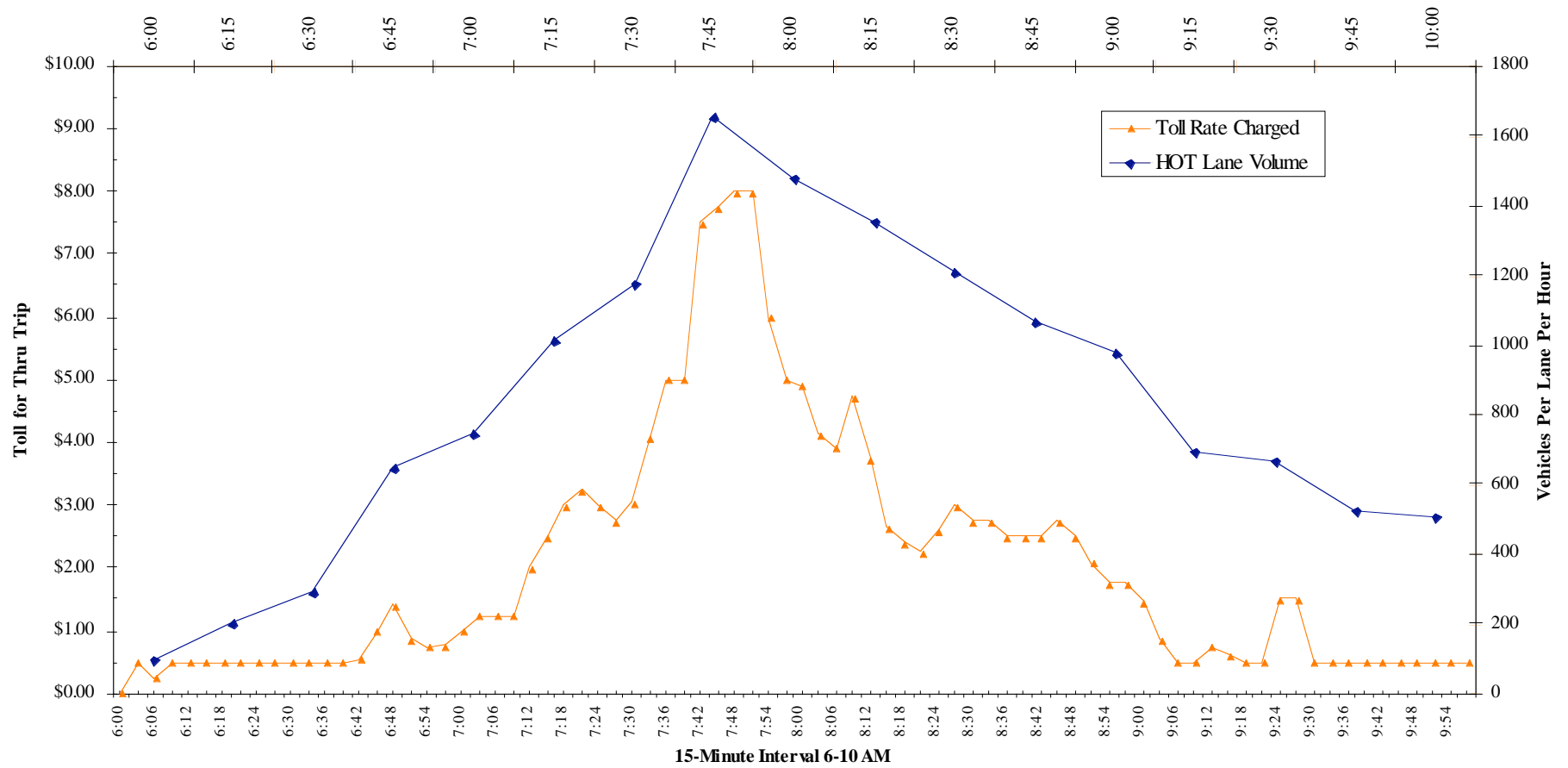
### **Patty Rubstello, PE**

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**I394 MnPass Toll Rates and HOT lane Volume 3/7/07 (6-10 AM)**



**I394 MnPass Toll Rates and HOT lane Volume 3/8/07 (6-10 AM)**





# Range of modeled toll rates

| Year | Estimated Toll Rates |           |
|------|----------------------|-----------|
|      | Minimum              | Maximum   |
| 2008 | \$ 0.50              | \$ 7.00   |
| 2010 | \$ 0.50              | \$ 9.00*  |
| 2012 | \$ 0.50              | \$ 10.00* |

\*Very little sensitivity to toll rates